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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,200	12/12/2003	Alexander Staroselsky	67097-019;EH-11084	1802
26096	7590	09/30/2005	EXAMINER	
CARLSON, GASKEY & OLDS, P.C. 400 WEST MAPLE ROAD SUITE 350 BIRMINGHAM, MI 48009			THEISEN, DOUGLAS J	
			ART UNIT	PAPER NUMBER
			1724	

DATE MAILED: 09/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/735,200	STAROSEL SKY ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Douglas J. Theisen	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 22 September 2005.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-17 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 10-17 is/are allowed.  
 6) Claim(s) 1-5 is/are rejected.  
 7) Claim(s) 6-9 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 12 December 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>121203</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION*****Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 38a and 38b on page 5, paragraph 24, lines 4 and 5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "36" and "38" have both been used to designate "signal generator system" in figure 3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

3. The disclosure is objected to because of the following informalities: on page 3, paragraph 17, line 5 "exchanges" should be "exchangers"; on page 4, paragraph 21, line 7 "fuel channel 48" should be "fuel channel 40"; on page 5, paragraph 24, line 2 "to" should be inserted after "relative"; on page 5, paragraph 25, line 4 "oxygen-removing membrane 44" should be "oxygen-removing membrane 42".

Appropriate correction is required.

***Claim Objections***

4. Claims 3, 4, 5, and 7 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 3, 4, 5, and 7 are apparatus claims that recite intended use of the transducers. Claims 3, 4, 5, and 7 do not recite structural limitations of the transducers.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 3, 4, and 5 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. patent application publication 2003/0221678 A1 to Kelemencky. Kelemencky describes a fuel system comprising a fuel channel which defines an axis (channel 80); a first transducer located adjacent the fuel channel and off the axis (transducer 26); and a second transducer located adjacent the fuel channel and off the axis (transducer 26). The first transducer and the second transducer generate an acoustic signal. The first transducer and the second transducer generate an ultrasonic signal. The first transducer and the second transducer generate acoustic flow chaotization within the fuel channel (the transducers effect multiple ultrasonic wavefront excitations). See Fig. 5 and page 4, paragraph 43.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent application publication no. 2001/0015135 A1 to Chybin et al. in view of either Japanese patent no. 05092103 A to Oono or U.S. patent application publication no. 2003/0061939 A1 to Hutton et al. Chybin describes a fuel system comprising a fuel channel which defines an axis (housing 1) and a transducer located adjacent the fuel channel and off the axis (an ultrasound acoustic irradiation device is provided in front of or in the bubble separating arrangement; the planes of

like sound-field amplitude are parallel to the flow direction). The transducer generates an acoustic signal. The transducer generates an ultrasonic signal. The transducer generates acoustic flow chaotization within the fuel channel. See Fig. 1; page 2, paragraphs 14 and 15; and page 3, paragraphs 27-30. Chybin does not describe a first transducer and a second transducer. Chybin does not describe the first transducer is angled to the second transducer. Oono describes an ultrasonic defoaming apparatus including a first transducer (ultrasonic vibrator on end of columns 3a-3c) located adjacent a channel (pipe) and off the axis angled to a second transducer (ultrasonic vibrator on end of columns 3a-3c) located adjacent a channel (pipe) and off the axis. See fig. 1 and the abstract. Hutton describes a debubbling apparatus including a first transducer (ultrasonic transducer 38) located adjacent the channel (vessel 14) and off the axis angled to a second transducer (ultrasonic transducer 40) located adjacent the channel (vessel 14) and off the axis. See fig. 3 and page 2, paragraphs 22-25. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to provide Chybin with a first transducer and a second transducer as in either Oono or Hutton in order to ensure bubble separation.

*Allowable Subject Matter*

9. Claims 6, 8, and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. Claims 10-17 are allowed.
11. The following is a statement of reasons for the indication of allowable subject matter:  
The reasons for the indication of allowable subject matter are that the closest prior art, U.S.

patent application publication 2003/0221678 to Kelemencky, describes a fuel system comprising a fuel channel which defines an axis (channel 80); a first transducer located adjacent the fuel channel and off the axis (transducer 26); and a second transducer located adjacent the fuel channel and off the axis (transducer 26). The first transducer and the second transducer generate an acoustic signal. The first transducer and the second transducer generate an ultrasonic signal. The first transducer and the second transducer generate acoustic flow chaotization within the fuel channel (the transducers effect multiple ultrasonic wavefront excitations). See Fig. 5 and page 4, paragraph 43. Kelemencky does not describe applicant's feature of a fuel system further comprising an oxygen permeable membrane in communication with the fuel channel and does not describe applicant's feature of the fuel channel comprising a system of micro-channels.

12. The following is an examiner's statement of reasons for allowance: The reasons for allowance of claims 10-17 are that the closest prior art, U.S. patent application publication 2001/0015135 to Chybin et al., describes a method of separation of bubbles within a fuel system comprising the steps of generating acoustic flow chaotization within a liquid fuel containing bubbles to produce bubble coalescence. Chybin does not describe applicant's method of reducing dissolved oxygen from within a fuel system wherein the generation of acoustic flow chaotization intensifies oxygen from within the liquid fuel to a surface of an oxygen-permeable membrane.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

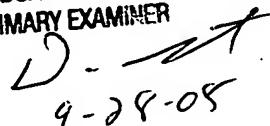
***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas J. Theisen whose telephone number is 571-272-1168. The examiner can normally be reached on Monday, Tuesday, and Wednesday 6:30 until 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

djt

DUANE SMITH  
PRIMARY EXAMINER  
  
9-28-05